



Dart Aerospace Ltd.
1270 Aberdeen St
Hawkesbury, ON
K6A 1K7
Canada

Tel (613) 632-5200
Fax 613 632-5246

D119-796-241
Job Sheet 194136



Part No: D119-796-241

Job Qty: 1 pcs

Part Name: Aft Crosstube Installation Without Step (No Hardware)



Part Weight: 0 lbs

Status: New

Priority: Medium

Job Created: 4/25/19

DAS

Job Tracking No:

Due Date: 6/25/19

10

Created By: Marie Lajeunesse

Type: SOLD

9-89

Description:

Note: D119-796-241 REV:J IPP REV:A 14.09.03 NEW ISSUE DD VERF:JLM IPP REV:B 14.10.15 AS PER REV.B DD VERF:JLM IPP REV:C 14.11.19 AS PER REV.C DD VERF:JLM IPP REV:D 14.12.12 AS PER REV.pd1 DD VERF:JLM IPP REV:E 15.02.11 AS PER REV F JLM VERIFIED BY:DD IPP REV:F 17.05.08 AS PER IIN REV:F DD VERF:JFS

Ship Via:

Bill of Materials

Job Routing

Op No	Operation	Qty	Start Date	Due Date	Standard		Workcenter/Supplier		Sign-off
					Setup Hrs	Run Hrs	Workcenter / Supplier	Lead Time	
120	Packaging 1 - Pick Kit	1 pcs		6/25/19	0.00	0.00	Packaging 1 - 1		
							Packaging 1 - 2		
							Packaging 1 - 3		
							Packaging 1 - 4		
							Packaging 1 - 5		
							Packaging 1 - 6		
							Packaging 1 - 7		
							Packaging 1 - 8		
							Packaging 1 - 9		
							Packaging 1 - 10		
							Packaging 1 - 11		
							Packaging 1 - 12		
							Packaging 1 - 13		
							Packaging 1 - 14		
							Packaging 1 - 15		
							Packaging 1 - 16		
							Packaging 1 - 17		
							Packaging 1 - 18		
							Packaging 1 - 19		
							Packaging 1 - 20		
							Packaging 1 - 21		
							Packaging 1 - 22		
							Packaging 1 - 23		
							Packaging 1 - 24		
							Packaging 1 - 25		
							Packaging 1 - 26		
							Packaging 1 - 27		
							Packaging 1 - 28		
							Packaging 1 - 29		

BD 1/5/2019



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Container No: S177506



Part: D119-796-241

Job No: 194136

Serial No/Batch: S177506

Revision: J

Inspector:

Exp Date:

Instructions: TC STC SH14-45-1 Issue 1, EASA STC SR03504NY 15/01/28, EASA

					Packaging 1 - 30	
					Packaging 1 - 31	
					Packaging 1 - 32	
					Packaging 1 - 33	
					Packaging 1 - 34	
					Packaging 1 - 35	
					Packaging 1 - 36	
130	Crosstubes - Bend - 2 - B4B	1 pcs	6/25/19	4.67 4.17	Crosstubes - Bend - B4B	BB 2/5/2019
140	QC 15	1 pcs	6/25/19	0.00 0.00	QC 15 - 12	
					QC 15 - 3	DAS
					QC 15 - 47	47
					QC 15 - 49	9-89
					QC 15 - 58	
					QC 15 - 9	
					QC 15 - 68	
145	Crosstubes - 2 - B4B	1 pcs	6/25/19	0.00 3.30	Crosstubes - 1 - B4B	
					Crosstubes - 2 - B4B	GP 19-05-09
					Crosstubes - 3 - B4B	
					Crosstubes - 4 - B4B	
150	Crosstubes - 3 - B4B	1 pcs	6/25/19	0.00 3.30	Crosstubes - 1 - B4B	
					Crosstubes - 2 - B4B	
					Crosstubes - 3 - B4B	GP 19-05-09
					Crosstubes - 4 - B4B	
160	Crosstubes - 4 - B4B	1 pcs	6/25/19	0.00 1.28	Crosstubes - 1 - B4B	
					Crosstubes - 2 - B4B	
					Crosstubes - 3 - B4B	
					Crosstubes - 4 - B4B	GP 19-05-09
170	QC 7	1 pcs	6/25/19	0.00 0.00	QC 7 - 10	
					QC 7 - 13	
					QC 7 - 14	
					QC 7 - 15	
					QC 7 - 17	
					QC 7 - 18	
					QC 7 - 19	
					QC 7 - 2	
					QC 7 - 28	
					QC 7 - 3	
					QC 7 - 30	
					QC 7 - 34	
					QC 7 - 36	
					QC 7 - 37	
					QC 7 - 41	
					QC 7 - 47	
					QC 7 - 48	
					QC 7 - 51	
					QC 7 - 58	
					QC 7 - 59	
					QC 7 - 60	
					QC 7 - 9	DAS
					QC 7 - 68	MAY 13 2019 68
					QC 7 - 50	9-89
					QC 7 - 67	
					QC 7 - 40	
175	QC 5	1 pcs	6/25/19	0.00 0.00	QC 5 - 10	
					QC 5 - 12	
					QC 5 - 17	
					QC 5 - 18	
					QC 5 - 19	
						Plex 4/25/19 1:24 PM Dart.lajeunesse.marie

					QC 5 - 22	
					QC 5 - 24	
					QC 5 - 3	
					QC 5 - 43	
					QC 5 - 49	
					QC 5 - 51	
					QC 5 - 58	DAS
					QC 5 - 68	MAY 13 2019 68
					QC 5 - 9	9-89
					QC 5 - 50	
					QC 5 - 30	
					QC 5 - 40	
180 Outsource	1 pcs	6/25/19			SKY002-VC	2 MAY 2019-05-17
190 Packaging 2-1 - Receive - B4B	1 pcs	6/25/19	0.00 0.00		Packaging 2 - 1 - B4B	
					Packaging 2 - 2 - B4B	
					Packaging 2 - 3 - B4B	
					Packaging 2 - 5 - B4B	
					Packaging 2 - 4 - B4B	
					Packaging 2 - 6 - B4B	
					Packaging 2 - 7 - B4B	
					Packaging 2 - 8 - B4B	
					Packaging 2 - 9 - B4B	
					Packaging 2 - 10 - B4B	
					Packaging 2 - 11 - B4B	
					Packaging 2 - 12 - B4B	
					Packaging 2 - 13 - B4B	
					Packaging 2 - 14 - B4B	
					Packaging 2 - 15 - B4B	
					Packaging 2 - 16 - B4B	
					Packaging 2 - 17 - B4B	
					Packaging 2 - 18 - B4B	
					Packaging 2 - 19 - B4B	
					Packaging 2 - 20 - B4B	
					Packaging 2 - 21 - B4B	
					Packaging 2 - 22 - B4B	
					Packaging 2 - 23 - B4B	
					Packaging 2 - 24 - B4B	
					Packaging 2 - 25 - B4B	
					Packaging 2 - 26 - B4B	
					Packaging 2 - 27 - B4B	
					Packaging 2 - 28 - B4B	
					Packaging 2 - 29 - B4B	
					Packaging 2 - 30 - B4B	
					Packaging 2 - 31 - B4B	
					Packaging 2 - 32 - B4B	
					Packaging 2 - 33 - B4B	
					Packaging 2 - 34 - B4B	
					Packaging 2 - 35 - B4B	
					Packaging 2 - 36 - B4B	
200 QC 5	1 pcs	6/25/19	0.00 0.00		QC 5 - 10	
					QC 5 - 12	
					QC 5 - 17	
					QC 5 - 18	
					QC 5 - 19	
					QC 5 - 22	
					QC 5 - 24	
					QC 5 - 3	
					QC 5 - 43	

					QC 5 - 49	
					QC 5 - 51	
					QC 5 - 58	DAS
					QC 5 - 68	MAY 17 2019 68
					QC 5 - 9	9-89
					QC 5 - 50	
					QC 5 - 30	
					QC 5 - 40	
230 Spray Paint - 2 - B4B	1 pcs	6/25/19	0.00 1.31	Spray Paint - 1 - B4B	RD 19-5-27	
				Spray Paint - 2 - B4B		
				Spray Paint - 3 - B4B		
				Spray Paint - 4 - B4B		
240 QC 14	1 pcs	6/25/19	0.00 0.00	QC 14 - 15		
				QC 14 - 2		
				QC 14 - 34		
				QC 14 - 41	AB 19-5-27	
				QC 14 - 51		
				QC 14 - 58		
				QC 14 - 59		
				QC 14 - 9		
				QC 14 - 68		
				QC 14 - 40		
242 Crosstubes - 5 - B4B	1 pcs	6/25/19	0.00 3.30	Crosstubes - 1 - B4B		
				Crosstubes - 2 - B4B		
				Crosstubes - 3 - B4B		
				Crosstubes - 4 - B4B	AB 19-5-27	
244 QC 5	1 pcs	6/25/19	0.00 0.00	QC 5 - 10		
				QC 5 - 12		
				QC 5 - 17		
				QC 5 - 18		
				QC 5 - 19		
				QC 5 - 22		
				QC 5 - 24		
				QC 5 - 3		
				QC 5 - 43		
				QC 5 - 49		
				QC 5 - 51		
				QC 5 - 58		
				QC 5 - 68	MAY 28 2019 68	
				QC 5 - 9	9-89	
				QC 5 - 50		
				QC 5 - 30		
				QC 5 - 40		
246 Spray Paint - 3 - B4B	1 pcs	6/25/19	0.00 1.31	Spray Paint - 1 - B4B	AB 19-6-3	
				Spray Paint - 2 - B4B		
				Spray Paint - 3 - B4B		
				Spray Paint - 4 - B4B		
248 Spray Paint - 4 - B4B	1 pcs	6/25/19	0.00 1.31	Spray Paint - 1 - B4B	AB 19-6-7	
				Spray Paint - 2 - B4B		
				Spray Paint - 3 - B4B		
				Spray Paint - 4 - B4B		
250 QC 14	1 pcs	6/25/19	0.00 0.00	QC 14 - 15		
				QC 14 - 2		
				QC 14 - 34		
				QC 14 - 41		
				QC 14 - 51		
				QC 14 - 58		
				QC 14 - 59		

				QC 14 - 9	DAS
				QC 14 - 68	JUN 26 2019 68
				QC 14 - 40	9-89
				QC 14 - 19	
252 Crosstubes - 6 - B4B	1 pcs	6/25/19	0.00 3.30	Crosstubes - 1 - B4B	
				Crosstubes - 2 - B4B	
				Crosstubes - 3 - B4B	
				Crosstubes - 4 - B4B	• A2 19-6-29
260 QC 5	1 pcs	6/25/19	0.00 0.00	QC 5 - 10	
				QC 5 - 12	
				QC 5 - 17	
				QC 5 - 18	
				QC 5 - 19	
				QC 5 - 22	
				QC 5 - 24	
				QC 5 - 3	
				QC 5 - 43	
				QC 5 - 49	
				QC 5 - 51	
				QC 5 - 58	
				QC 5 - 68	
				QC 5 - 9	
				QC 5 - 50	
				QC 5 - 30	
				QC 5 - 40	SC 19-07-03
270 Packaging 1-1 - Pick Kit - B4B	1 pcs	6/25/19	0.00 0.00	Packaging 1 - 1 - B4B	
				Packaging 1 - 2 - B4B	
				Packaging 1 - 3 - B4B	
				Packaging 1 - 4 - B4B	
				Packaging 1 - 5 - B4B	
				Packaging 1 - 6 - B4B	
				Packaging 1 - 7 - B4B	
				Packaging 1 - 8 - B4B	
				Packaging 1 - 9 - B4B	
				Packaging 1 - 10 - B4B	
				Packaging 1 - 11 - B4B	
				Packaging 1 - 12 - B4B	
				Packaging 1 - 13 - B4B	
				Packaging 1 - 14 - B4B	
				Packaging 1 - 15 - B4B	
				Packaging 1 - 16 - B4B	
				Packaging 1 - 17 - B4B	
				Packaging 1 - 18 - B4B	
				Packaging 1 - 19 - B4B	
				Packaging 1 - 20 - B4B	
				Packaging 1 - 21 - B4B	
				Packaging 1 - 22 - B4B	• A2 19-6-29
				Packaging 1 - 23 - B4B	
				Packaging 1 - 24 - B4B	
				Packaging 1 - 25 - B4B	
				Packaging 1 - 26 - B4B	
				Packaging 1 - 27 - B4B	
				Packaging 1 - 28 - B4B	
				Packaging 1 - 29 - B4B	
				Packaging 1 - 30 - B4B	
				Packaging 1 - 31 - B4B	
				Packaging 1 - 32 - B4B	
				Packaging 1 - 33 - B4B	
				Packaging 1 - 34 - B4B	

280 QC 4	1 pcs	6/25/19	0.00 0.00	Packaging 1 - 35 - B4B	
				Packaging 1 - 36 - B4B	
				QC 4 - 28	DAS
				QC 4 - 58	28
				QC 4 - 69	9-89
				QC 4 - 9	
				QC 4 - 46	
290 Packaging 3-1 - Stock - B4B	1 pcs	6/25/19	0.00 0.00	QC 4 - 68	
				Packaging 3 - 1 - B4B	
				Packaging 3 - 2 - B4B	
				Packaging 3 - 3 - B4B	
				Packaging 3 - 4 - B4B	
				Packaging 3 - 5 - B4B	
				Packaging 3 - 6 - B4B	
				Packaging 3 - 7 - B4B	
				Packaging 3 - 8 - B4B	
				Packaging 3 - 9 - B4B	
				Packaging 3 - 10 - B4B	
				Packaging 3 - 11 - B4B	
				Packaging 3 - 12 - B4B	
				Packaging 3 - 13 - B4B	
				Packaging 3 - 14 - B4B	
				Packaging 3 - 15 - B4B	
				Packaging 3 - 16 - B4B	
				Packaging 3 - 17 - B4B	
				Packaging 3 - 18 - B4B	
				Packaging 3 - 19 - B4B	
				Packaging 3 - 20 - B4B	
				Packaging 3 - 21 - B4B	
				Packaging 3 - 22 - B4B	• A-19-7-4
				Packaging 3 - 23 - B4B	
				Packaging 3 - 24 - B4B	
				Packaging 3 - 25 - B4B	
				Packaging 3 - 26 - B4B	
				Packaging 3 - 27 - B4B	
				Packaging 3 - 28 - B4B	
				Packaging 3 - 29 - B4B	
				Packaging 3 - 30 - B4B	
				Packaging 3 - 31 - B4B	
				Packaging 3 - 32 - B4B	
				Packaging 3 - 33 - B4B	
				Packaging 3 - 34 - B4B	
				Packaging 3 - 35 - B4B	
				Packaging 3 - 36 - B4B	DAS
295 DC - 1 - B4B	1 pcs	6/25/19	0.00 0.00	DC - 1 - B4B	21 NR
				DC - 2 - B4B	9-85 JUL 04 2019
300 QC 21 - FG	1 pcs	6/25/19	0.00 0.00	QC 21 - FG - 21	
				QC 21 - FG - 70	DAS
				QC 21 - SA - 53	21 JUL 04 2019

Part Op 120 - (Pick Kit)

Descriptions: 130 - (CNC Alpha 160 Bender) Bend tube as per Dwg D119-796-241 using CNC bender program

140 - (QC15- Crosstube Dimensional Check)

145 - (Crosstubes) 1- CUT TUBE AT HEIGHT ON FAI SHEET

150 - (Crosstubes) ***** ENSURE PROPER JIG POSITIONING *****

160 - (Crosstubes Chemical Conversion) ***IMMEDIATELY AFTER GRINDING***

170 - (QC7-Inspect Chemical Conversion Coat)

175 - (QC5- Inspect part completeness to step on W/O)

180 - *** WEAR LATEX GLOVES WHEN HANDLING CROSSTUBE***

190 - (Receive & Inspect for Damage & Mat'l Certs) Ensure copy of NDT results attached to work order.

200 - (QC5- Inspect part completeness to step on W/O) *** WEAR LATEX GLOVES WHEN HANDLING CROSSTUBE***

Inspect for damage & ensure results are as per Dwg D119-796-241

- 230 - (Spray Paint / NDT Room) ***VERIFY BY _____ BATCH # TO MATCH W/O Primer S154137
- 240 - (QC14- Inspect Spray Paint) ***VERIFY BY _____ BATCH # TO MATCH W/O _____
- 242 - (Crosstubes) Assemble as per dwg D119-796-241 and QSI 2- Install D5152-043 with proseal 890 on concave surface, 0.100" MIN thick as per dwg using DT10112 (identified right and left) 3- Install center support without bonbing. 4- Install Damper support and contact pads using proseal 890 per dwg and clamp in position. Proseal S146134 exp 10/19
- 244 - (QC5- Inspect part completeness to step on W/O) ***VERIFY BY _____ BATCH # TO MATCH W/O _____
- 246 - (Spray Paint / NDT Room) ***VERIFY BY _____ BATCH # TO MATCH W/O Primer S154137 clear S151467
- 248 - (Spray Paint / NDT Room) ***VERIFY BY _____ BATCH # TO MATCH W/O Paint S188315
- 250 - (QC14- Inspect Spray Paint) ***VERIFY BY _____ BATCH # TO MATCH W/O _____
- 252 - (Crosstubes) 1- Re-install non fixed hardware per dwg ***Torque clamps on damper and contact pad to 80-100 IN-LBS. *** 2- Apply a filet-seal of proseal 890 around damper supports and contact pads.
- 260 - (QC5- Inspect part completeness to step on W/O) ***RE-CHECK TORCQUE ON CLAMP AFTER PROSEAL HAS CURED AS PER DWG. *** 1- ATTACH A RED TAG TO CENTER SUPPORT THAT READS CENTER SUPPORT NOT FIXED THEN DATE AND STAMP IT.
- 270 - (Pick Kit)
- 280 - (QC4- 100% Inspect kits for completeness)
- 290 - (Identify as per dwg & Stock Location: _____) Identify and pack for shipping as per PPP D119-796-241
- 295 - (Document Control) Photocopy bluefile and create labels as per PPP D119-796-241 chg 005
- 300 - (QC21- Final Inspection - Work Order Release) on w/o 190031

Job BOM

Part / Item	Component Name	Quantity	Operation	Container
D119-796-241TRN	Crosstube Turning Detail	1 pcs (1 ea)	120-Packaging 1 - Pick Kit	<u>S138193</u>
CR3212-4-07	Cherry Rivet	16 Ea (16 ea)	230-Spray Paint - 2 - B4B	
D2873-043	Nut Plate Assembly	4 pcs (4 ea)	230-Spray Paint - 2 - B4B	
D5122-1	Center Support, Upper	1 pcs (1 ea)	242-Crosstubes - 5 - B4B	
D5123-1	Clamp Cushion	6 pcs (6 ea)	242-Crosstubes - 5 - B4B	
D5123-5	Clamp Cushion	2 pcs (2 ea)	242-Crosstubes - 5 - B4B	
D5134-041	Damper Support Assembly, LH	1 pcs (1 ea)	242-Crosstubes - 5 - B4B	
D5134-042	Damper Support Assembly, RH	1 pcs (1 ea)	242-Crosstubes - 5 - B4B	
D5136-1	Contact Pad, LH	1 pcs (1 ea)	242-Crosstubes - 5 - B4B	
D5136-2	Contact Pad, RH	1 pcs (1 ea)	242-Crosstubes - 5 - B4B	
D5152-043	Aft Post Mount Assembly	2 pcs (2 ea)	242-Crosstubes - 5 - B4B	
MS21920-25	Clamp	10 Ea (10 ea)	242-Crosstubes - 5 - B4B	
D5123-3	Clamp Cushion	4 pcs (4 ea)	242-Crosstubes - 5 - B4B	
D5515-1	Grounding Clamp	2 pcs (2 ea)	242-Crosstubes - 5 - B4B	
MS21042L3	Nut	2 Ea (2 ea)	242-Crosstubes - 5 - B4B	
MS27039-1-08	Screw	2 Ea (2 ea)	242-Crosstubes - 5 - B4B	
NAS1149D0332J	Washer	4 Ea (4 ea)	242-Crosstubes - 5 - B4B	
MS27039-1-08	Screw	2 Ea (2 ea)	252-Crosstubes - 6 - B4B	
AN174-3A	Bolt	2 Ea (2 ea)	270-Packaging 1-1 - Pick Kit - B4B	
MS21042L4	Nut	2 Ea (2 ea)	270-Packaging 1-1 - Pick Kit - B4B	
NAS1149D0432J	Washer	4 Ea (4 ea)	270-Packaging 1-1 - Pick Kit - B4B	

Job Allocations

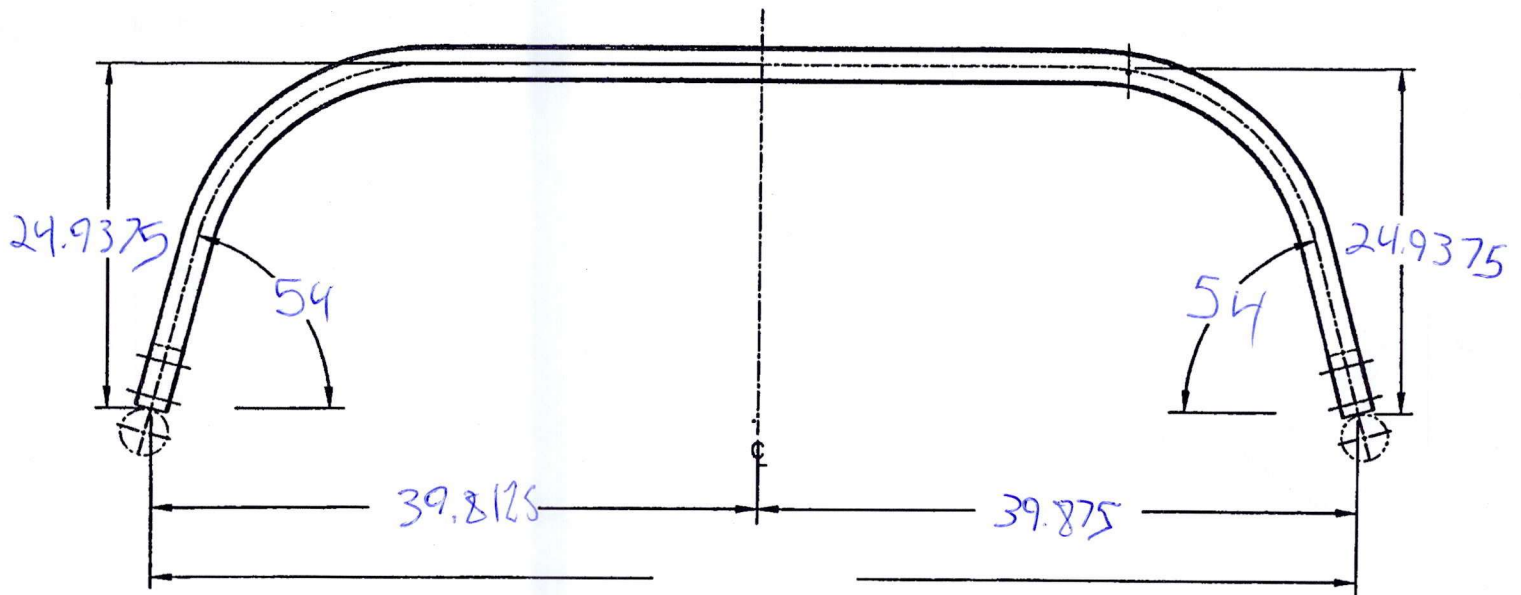
Operation	Component Part	Required	Inventory	Allocated
120-Packaging 1 - Pick Kit	D119-796-241TRN	1	4	0
230-Spray Paint - 2 - B4B	CR3212-4-07 5123435 (13) 15 5167654 (4)		183	0
	D2873-043 5157731 (4)		51	0
242-Crosstubes - 5 - B4B	D5122-1 5110364 (1)		8	0
	D5123-1 F160081 (6)		126	0
	D5123-3 F160079 (4)		175	0
	D5123-5 163263 (2)		172	0
	D5134-041 5108280 (1)		8	0
	D5134-042 5107553 (1)		8	0
	D5136-1 510574 (1)		2	0
	D5136-2 5080136 (1)		8	0
	D5152-043 5161662 (2)		12	0
	D5515-1 5114720 (2)		6	0
	MS21042L3 5166712 (2)		3,387	0
	MS21920-25 5173047 (10)		97	0
	MS27039-1-08 5167111 (2)		563	0
	NAS1149D0332J 5167289 (4)		3,130	0
252-Crosstubes - 6 - B4B MS21920-28	MS27039-1-08 5173047 (2) 5171271 (4) 563 5173741 (1)		563	0
270-Packaging 1-1 - Pick Kit - B4B	AN174-3A 5127325 (2)		16	0
	MS21042L4 5157064 (2)		3,585	0
	NAS1149D0432J 5096756 (4)		266	0

Part Specifications

Spec No	Description	Target/Tolerance	Limits	Type	Special Comments
1	Crosstube Assembly (AW119 MKII Aft)	5.880Inches ± 0.030	5.910 5.850		
2	Crosstube Assembly (AW119 MKII Aft)	2.516Inches + 0.005 - 0.000	2.521 2.516		
3	Crosstube Assembly (AW119 MKII Aft)	2.626Inches + 0.005 - 0.000	2.631 2.626		
4	Crosstube Assembly (AW119 MKII Aft)	2.627Inches + 0.005 - 0.000	2.632 2.627		
5	Crosstube Assembly (AW119 MKII Aft)	2.798Inches + 0.005 - 0.000	2.803 2.798		
6	Crosstube Assembly (AW119 MKII Aft)	2.799Inches + 0.005 - 0.000	2.804 2.799		
7	Crosstube Assembly (AW119 MKII Aft)	2.989Inches + 0.005 - 0.000	2.994 2.989		
8	Crosstube Assembly (AW119 MKII Aft)	3.191Inches + 0.005 - 0.000	3.196 3.191		
9	Crosstube Assembly (AW119 MKII Aft)	3.200Inches + 0.005 - 0.000	3.205 3.200		
10	Crosstube Assembly (AW119 MKII Aft)	5.880Inches ± 0.030	5.910 5.850		
11	Crosstube Assembly (AW119 MKII Aft)	2.516Inches + 0.005 - 0.000	2.521 2.516		
12	Crosstube Assembly (AW119 MKII Aft)	2.626Inches + 0.005 - 0.000	2.631 2.626		
13	Crosstube Assembly (AW119 MKII Aft)	2.627Inches + 0.005 - 0.000	2.632 2.627		
14	Crosstube Assembly (AW119 MKII Aft)	2.798Inches + 0.005 - 0.000	2.803 2.798		
15	Crosstube Assembly (AW119 MKII Aft)	2.799Inches + 0.005 - 0.000	2.804 2.799		
16	Crosstube Assembly (AW119 MKII Aft)	2.989Inches + 0.005 - 0.000	2.994 2.989		
17	Crosstube Assembly (AW119 MKII Aft)	3.191Inches + 0.005 - 0.000	3.196 3.191		
18	Crosstube Assembly (AW119 MKII Aft)	3.200Inches + 0.005 - 0.000	3.205 3.200		
19	Crosstube Assembly (AW119 MKII Aft)	105.710Inches ± 0.020	105.730 105.690		

DART AEROSPACE LTD		Work Order: 194136
Description: Crosstube Aft, with Step		Part Number: D119-796-241
Inspection Dwg: D119-796-241 Rev: J		Page 1 of 1

Required Dimension	Min	Max
Height	24.840	25.100
1/2 Span	39.810	40.070
Angle	54°	57°
Total Span	79.620	80.140
Bending Passes	8	--
Crushing	--	8.5%

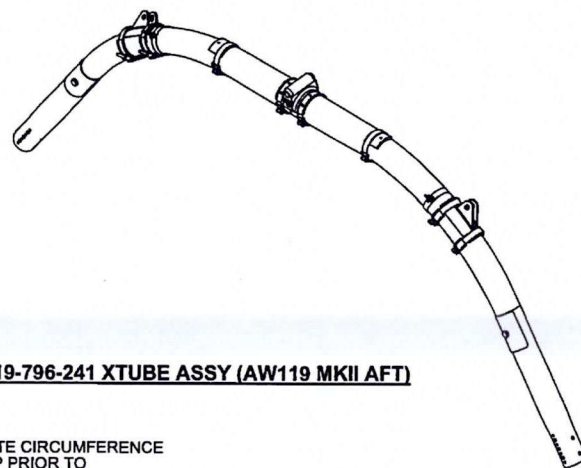


	Side A	Side B
Bending Passes	15	14
Crushing	7.8%	7.7%
Comments		

QC15 Inspection	DAS 47
Date	19-07-30

Rev	Date	Change	Revised by	Approved
A	15.04.14	New Issue	KJ	
B	15.11.12	Min angle revised	KJ	
C	15.12.15	Dwg Rev updated	KJ	
D	17.07.12	Dwg Rev updated	KJ	

SHOP COPY
RETURN TO
ENGINEERING
UNCONTROLLED COPY
SUBJECT TO AMENDMENT
WITHOUT NOTICE
WORK ORDER
NO. 194136 M.C.S
190425



D119-796-241 XTUBE ASSY (AW119 MKII AFT)

NOTES:

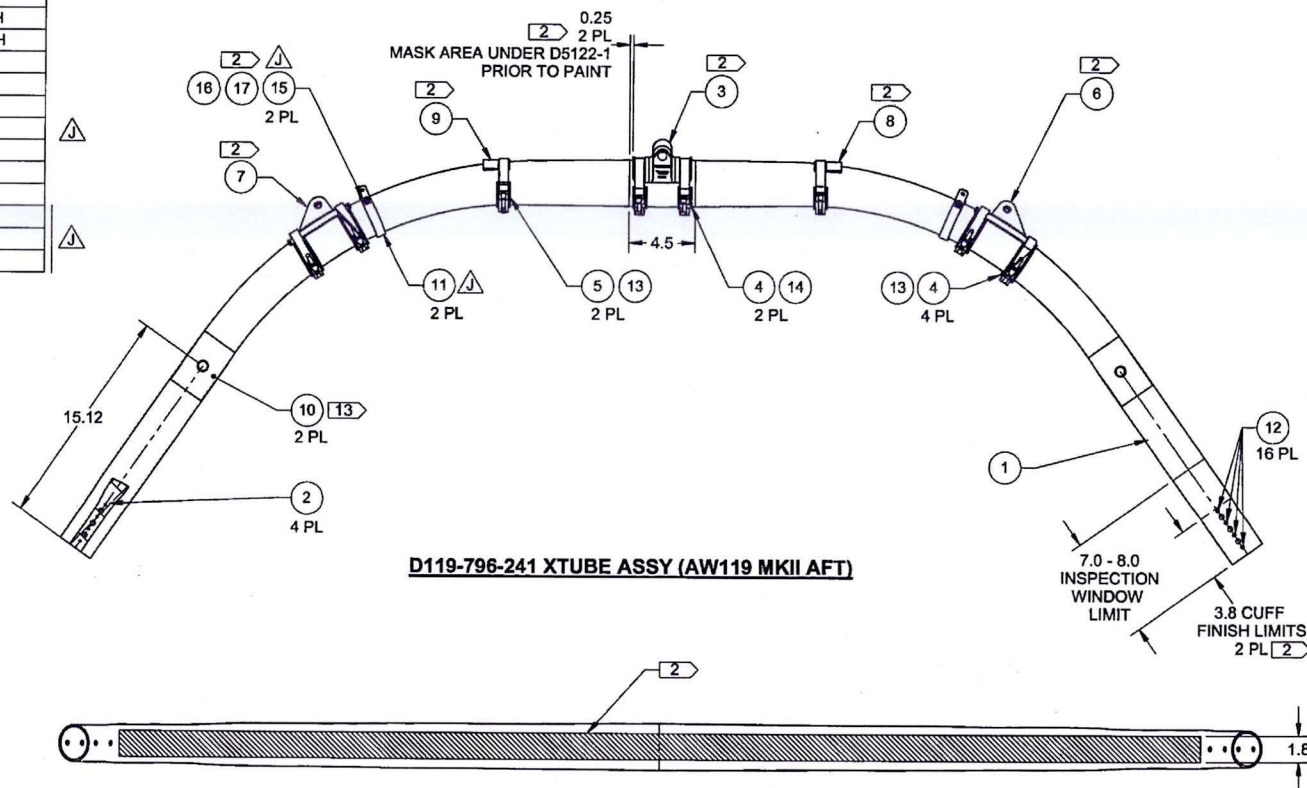
- 1) MATERIAL: N/A
- 2) FINISH: MASK D5134-041/-042 DAMPER SUPPORT ASSEMBLIES, CUFFS, D5136-1/-2 CONTACT PADS, THE COMPLETE CIRCUMFERENCE OF THE TUBE UNDER THE D5122-1 CENTER SUPPORT AND THE TAB ON THE D5515-1 GROUNDING CLAMP PRIOR TO APPLICATION OF CLEAR COAT/PAINT.
IF NECESSARY TOUCH UP PRIMER ON OUTSIDE OF CROSSTUBE PER DART QSI 005 4.2.
APPLY MATTE CLEAR COAT TO THE UNDERSIDE OF CROSSTUBE AS SHOWN (B4-2, HATCHED AREA) PER QSI 005 4.2.
MASK THE UNDERSIDE OF CROSSTUBE AS SHOWN (B4-2, HATCHED AREA).
PAINT OUTSIDE PER DART QSI 005 4.2
- 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED
- 5) BREAK SHARP EDGES: N/A
- 6) IDENTIFICATION: IDENTIFY USING PART NUMBER "D119-796-241" AND BATCH NUMBER ON INSIDE OF CUFF PER QSI 044 6.4
- 7) WEIGHT: 26.26 lbs
- 8) EXTREME CARE MUST BE TAKEN TO PROTECT THE OUTSIDE SURFACE OF THE TUBE. THE OUTSIDE SURFACE MUST BE SMOOTH AND FREE FROM DEFECTS SUCH AS SCRATCHES, NICKS OR DENTS. DEFECTS UP TO 0.005 MAY BE BLENDED OUT LONGITUDINALLY. CIRCUMFERENTIAL GRIND MARKS ARE UNACCEPTABLE.
- 9) INSTALL D5122-1 CENTER SUPPORT HAND TIGHT ONLY. DO NOT TORQUE. INSTALL RED TAG TO INDICATE "D5122-1 CENTER SUPPORT MUST BE BONDED PER IIN-D119-796 PRIOR TO FLIGHT".
- 10) PRIOR TO FINISHING, ABRASE MATING SURFACES OF D5136-1/-2 AND SURFACE OF CROSSTUBE WITH SCOTCH BRITE 7447 RED AND REMOVE RESIDUE WITH DUPONT 4105S WASH 'N' WIPE DEGREASER. APPLY A 0.100" MIN THK LAYER OF PROSEAL 890 ON THE INSIDE CONCAVE SURFACE OF THE D5136-1/-2 CONTACT PADS AND INSTALL AT AN 8.4° OFFSET FROM THE CROSSTUBE BENDING PLANE. INSTALL MS21920-25 CLAMPS AND D5123-5 CLAMP CUSHIONS WHILE WET. PRIOR TO PACKAGING, RE-CHECK TORQUE ON CLAMPS AFTER PROSEAL 890 SEALANT HAS CURED FOR 72 HOURS.
- 11) TORQUE MS21920 CLAMPS 80 - 100 IN-LB. ENSURE AT LEAST 1.5 THREADS SHOWING IN SAFETY. THE NUT HAS NOT BOTTOMED-OUT AFTER TORQUING AND THE NUT IS FACING AFT.
- 12) PRIOR TO FINISHING, POSITION AND INSTALL D5134-041/-042 DAMPER SUPPORTS USING JIG DT10085. ABRASE MATING SURFACES OF THE D5134-041/-042 DAMPER SUPPORTS AND CROSSTUBE WITH SCOTCH BRITE 7447 RED AND REMOVE RESIDUE WITH DUPONT 4105S WASH 'N' WIPE DEGREASER. APPLY A 0.100" MIN THK LAYER OF PROSEAL 890 ON THE INSIDE CONCAVE SURFACE OF THE D5134-041/-042. INSTALL MS21920-25 CLAMPS AND D5123-1 CLAMP CUSHIONS WHILE WET. PRIOR TO PACKAGING, RE-CHECK TORQUE ON CLAMPS AFTER PROSEAL 890 SEALANT HAS CURED FOR 72 HOURS. ENSURE THAT THE MS21920 CLAMPS ARE POSITIONED AS SHOWN IN DETAIL C.
- 13) PRIOR TO FINISHING, ABRASE MATING SURFACES OF CROSSTUBE AND D5152-043 WITH SCOTCH BRITE 7447 RED AND REMOVE RESIDUE WITH DUPONT 4105S WASH 'N' WIPE DEGREASER. INSTALL D5152-043 WITH LAYER OF PROSEAL 890 ON INSIDE CONCAVE SURFACE, 0.100" MIN THK LOCATE D5152-043 USING TOOL DT10112.
- 14) INSTALL THE D5515-1 GROUNDING CLAMP AND ASSOCIATED HARDWARE PER DETAIL "C" PRIOR TO FINISHING. TORQUE THE MS21042-3 NUT 12-15 IN-LB. COMPLETELY SEAL THE CLAMP USING PROSEAL 890.
- 15) CARRY OUT A RESISTANCE CHECK BETWEEN THE D5515-1 GROUNDING CLAMP AND ANY UNPAINTED SECTION OF THE CROSSTUBE IN ACCORDANCE WITH AC43-13-1B CHAPTER 11. MAXIMUM RESISTANCE IS 3 MILLIOHMS.

J	ADD NOTE 14 & 15 ON SHT 1, ADD PAINT/PRIMER MASKING LOCATIONS, REVISE NOTES ON SHT 1 & 4, REVISE BOM ON SHT 2 TO ADD GROUNDING CLAMP AND ASSOCIATED HARDWARE. REF PAR 17-580	ML	17.02.10
I	D6023-106 MATERIAL REPLACES D6009-106. D5136-1/-2 & D5134-041/-042 NOW INSTALLED ON PRIMER.	AP	15.10.13
H	NOTE 9 RE-WITTEN. BONDING INSTRUCTIONS MOVED TO IIN. SEE PREVIOUS REV FOR DETAILS.	AP	15.07.02
G	FINISHING ORDER ADJUSTED. UPDATE BEND TOLERANCE AND TRN DETAIL TOLERANCE TO MATCH D119-796-141 DWG	AP	15.04.24
F	REMOVED PRIMER/PAINT ON CUFFS, 2.518 WAS 2.500 (C8-5)	AP	15.02.03
E	D5152-043 WAS D5150-3, SCOTCH BRITE 7447 RED WAS 180 GRIT SANDPAPER	DB	15.01.15
D	ADD D5150-3 STEP POST (2X). MOVED INSPECTION WINDOW DETAIL TO SHT 1, MODIFIED NOTES ON SH 1 & 3	DB	14.11.25
C	CR3212-4-07 RIVETS WAS CR3212-4-05 RIVETS, RADIUS BLOCK WAS NUT PLATE ASSEMBLY (BOM). REMOVED 7.5 DEG CUFF HOLE OFFSET (A1-3), REDUCED CUFF DIA TO 2.500 (C8-5), ADD INSPECTION WINDOW	AP	14.10.23
B	ORIENTATION OF D5122-1 CENTER SUPPORT WAS CORRECTED. D5123-5 ADDED UNDER D5136-1/-2 CONTACT PADS. ADDED D2873-043 NUT PLATE ASSY & CR3212-4-05 RIVETS. ADDED REFERENCE TO SKIDTUBES FOR LOCATING CUFF HOLES. RE-ORGANIZED NOTES, REMOVED REDUNDANT INFORMATION.	AP	14.09.08
A	NEW ISSUE	AP	14.08.07
REV.	DESCRIPTION	BY	DATE
DESIGN	AP	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
DRAWN	ML		
CHECKED	JMH	DRAWING NO.	REV. J
MFG. APPR.	DP	D119-796-241	SHEET 1 OF 7
APPROVED	WM	TITLE	SCALE
DE APPR.	DS	XTUBE ASSY (AW119 MKII AFT)	NTS
DATE	17.02.10	COPYRIGHT © 2014 BY DART AEROSPACE LTD THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.	

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2017-05-04
ECN 17-536

APPROVED

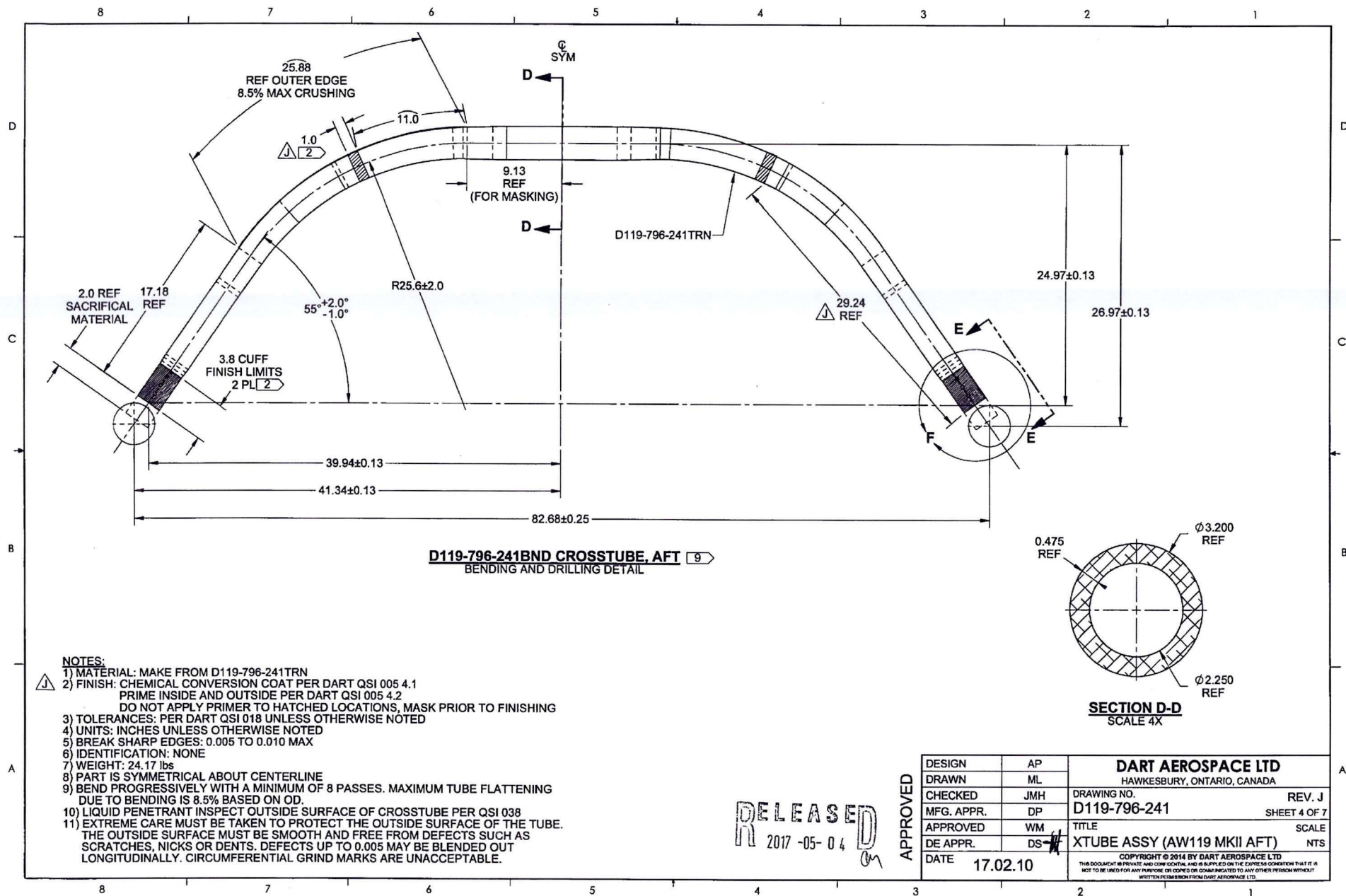
ITEM	QTY	P/N	DESCRIPTION
	X	D119-796-241	XTUBE ASSY (AW119 MKII AFT)
1	1	D119-796-241BND	CROSSTUBE, AFT
2	4	D2873-043	RADIUS BLOCK
3	1	D5122-1	CENTER SUPPORT
4	6	D5123-1	CLAMP CUSHION
5	2	D5123-5	CLAMP CUSHION
6	1	D5134-041	DAMPER SUPPORT ASSY, LH
7	1	D5134-042	DAMPER SUPPORT ASSY, RH
8	1	D5136-1	CONTACT PAD, LH
9	1	D5136-2	CONTACT PAD, RH
10	2	D5152-043	AFT POST MOUNT ASSY
11	2	D5515-1	GROUNDING CLAMP
12	16	CR3212-4-07	CSK RIVET, CHERRY MAX
13	6	MS21920-25	CLAMP
14	2	MS21920-28	CLAMP
15	2	MS27039-1-08	SCREW, PAN-HEAD
16	2	MS21042-3	NUT
17	4	NAS1149D0332J	WASHER

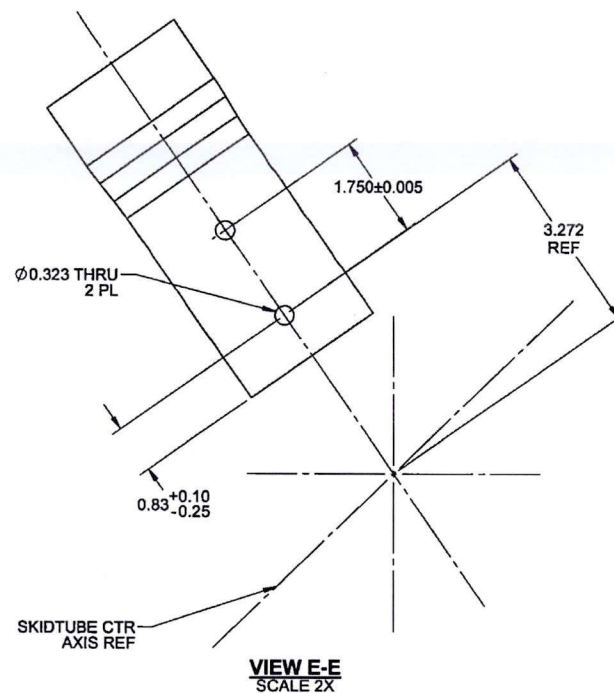


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2017-05-04

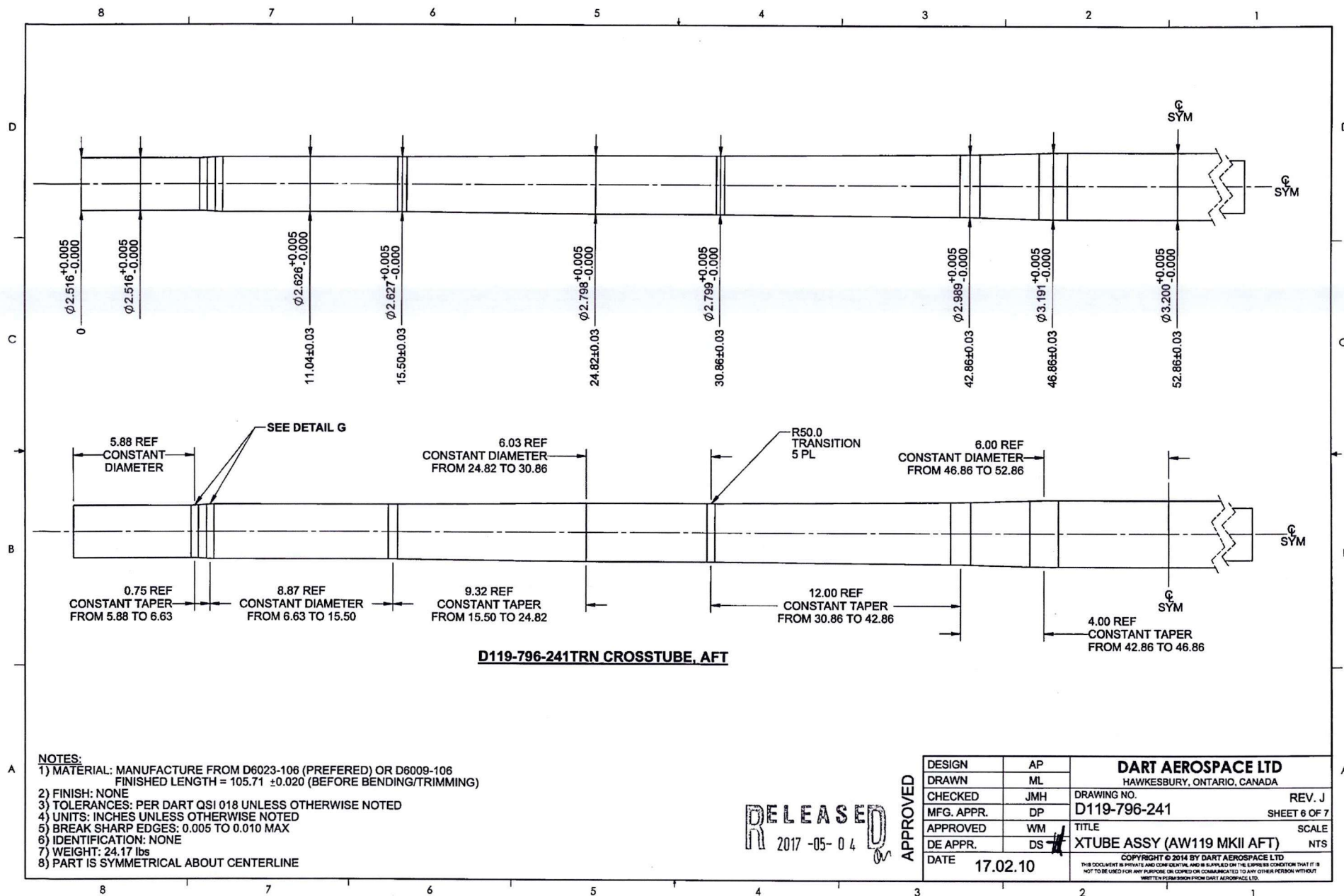
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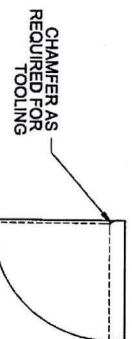
DESIGN	AP	DART AEROSPACE LTD	
DRAWN	ML	HAWKESBURY, ONTARIO, CANADA	
CHECKED	JMH	DRAWING NO.	REV. J
MFG. APPR.	DP	D119-796-241	SHEET 2 OF 7
APPROVED	WM	TITLE	SCALE
DE APPR.	DS	XTUBE ASSY (AW119 MKII AFT)	NTS
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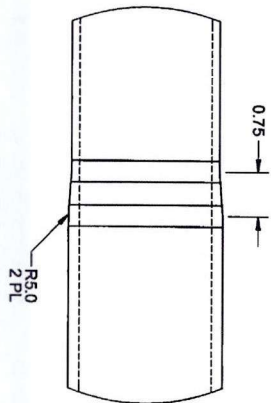


DESIGN	AP	DART AEROSPACE USA, INC.	
DRAWN	ML	KENT, WA	
CHECKED	JMH	DRAWING NO.	REV. J
MFG. APPR.	DP	D119-796-241	SHEET 5 OF 7
APPROVED	WM	TITLE	SCALE
DE APPR.	DS-#	XTUBE ASSY (AW119 MKII AFT)	NTS
DATE	17.02.10	COPYRIGHT © 2014 BY DART AEROSPACE USA, INC. THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT THE WRITTEN PERMISSION OF DART AEROSPACE USA, INC.	

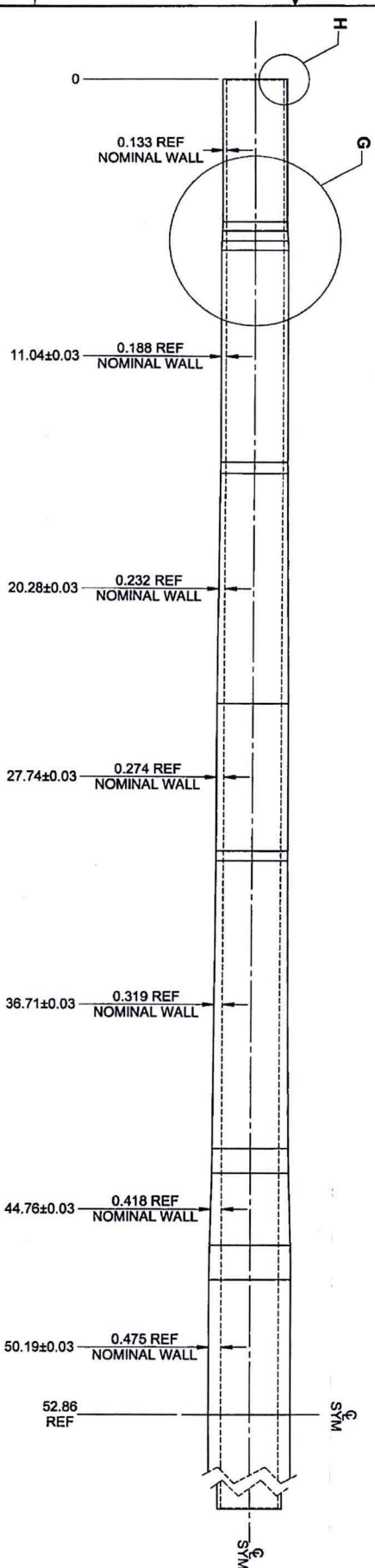




DETAIL H
SCALE 4X



DETAIL G
SCALE 2X



D119-796-241 TRN CROSS TUBE AFT
SUPPLEMENTAL VIEW: NOMINAL WALL THICKNESS

RELEASED
2017-05-04
APPROVED

DESIGN	AP	DART AEROSPACE LTD
DRAWN	ML	HAWKESBURY, ONTARIO, CANADA
CHECKED	JMH	REV. J
MFG. APPR.	DP	D119-796-241 SHEET 7 OF 7
APPROVED	WM	SCALE
DE APPR.	DS	XTUBE ASSY (AW119 MKII AFT) NTS
DATE	17.02.10	

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Dart Aerospace Ltd.
1270 Aberdeen St
Hawkesbury, ON
K6A 1K7
Canada

Tel (613) 632-5200

PURCHASE ORDER

POHB043464



Supplier: SKY002-VC
Skyservice
6120 Midfield Road
Mississauga
ON
L5P 1B1 Canada
Phone: 905-678-5636
Fax: 905-678-5841

Attention: Jenne, Heather

Ship To: 1270 Aberdeen Street
Hawkesbury
ON
K6A 1K7 Canada
Phone: 613-632-5200

PO No: POHB043464

PO Date: 5/15/19

Due Date: 5/17/19

**Purchase Order
Revision:**

Revision Date:

Ship-To Contact: Phone:

Via: Ground

Pymt Terms: Net 30

Freight Terms:

Special Comments:

Items

Line Item	Job	Part	Description	Status	Account	Due Date	Order Quantity	Received Quantity	Balance	Unit Price (CAD)	Extended Price
1	194661	D412-664-203	Aft Crosstube - High : TC STC SH01-9 Issue 3, FAA STC SR01298NY 09/01/08, EASA STC EASA.IM.R.S.01304 07/03/06, DGAC MEXICO STC IA- 316/2015 15/06/17 *** WEAR LATEX GLOVES WHEN HANDLING CROSSTUBE***	Firmed	-	5/17/19	1 pcs	0 pcs	1 pcs	\$108.80/pcs	\$108.80
	194660		1x MAY 21 2019	Firmed	-	5/17/19	1 pcs	0 pcs	1 pcs	\$108.80/pcs	\$108.80
	194662		1x MAY 21 2019	Firmed	-	5/17/19	1 pcs	0 pcs	1 pcs	\$108.80/pcs	\$108.80
	194658		1x MAY 21 2019	Firmed	-	5/17/19	1 pcs	0 pcs	1 pcs	\$108.80/pcs	\$108.80
Sub Total:							4	0	4		\$435.20

2	187571	D119-796-241	Aft Crosstube Installation Without Step (No Hardware) : TC STC SH14-45-Issue 1, FAA STC SR03504NY 15/01/28, EASA STC 10052022 Revision 1 15/02/13, DGCA INDIA LoA 07-09/2011-AED (Part) 15/07/16, BRAZIL STC 2015S07-16 15/07/30, CAAP PHILIPPINES LoA 16/05/11, CHINA VSTC0757 16/07/22, RUSSIA STC CT316-A119 16/08/11, DGAC INDONESIA STC SR025 18/02/19 *** WEAR LATEX GLOVES WHEN HANDLING CROSSTUBE*** *** WEAR LATEX GLOVES WHEN HANDLING CROSSTUBE***	Firmed	-	5/17/19	1 pcs	0 pcs	1 pcs	\$108.80/pcs	\$108.80
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Plex 5/17/19 2:51 PM Dart.Guerin.Kimberley



Dart Aerospace Ltd.
1270 Aberdeen St
Hawkesbury, ON
K6A 1K7
Canada

Tel (613) 632-5200

PURCHASE ORDER

POHB043464



Items

Line Item	Job	Part	Description	Status	Account	Due Date	Order Quantity	Received Quantity	Balance	Unit Price (CAD)	Extended Price
	194137		1x MAY 21 2019	Firmed	-	5/17/19	1 pcs	0 pcs	1 pcs	\$108.80/pcs	\$108.80
	194138		1x MAY 21 2019	Firmed	-	5/17/19	1 pcs	0 pcs	1 pcs	\$108.80/pcs	\$108.80
	194136		1x MAY 21 2019	Firmed	-	5/17/19	1 pcs	0 pcs	1 pcs	\$108.80/pcs	\$108.80
Sub Total:							4	0	4		\$435.20

DAS
68
9-89

③	187563	D119-796-141	Fwd Crosstube Installation Without Step (No Hardware) : TC STC SH14-45-Issue 1, FAA STC SR03504NY 15/01/28, EASA STC 10052022 Revision 1 15/02/13, DGCA INDIA LoA 07-09/2011-AED (Part) 15/07/16, BRAZIL STC 2015S07-16 15/07/30, CAAP PHILIPPINES LoA 16/05/11, CHINA VSTC0757 16/07/22, RUSSIA STC CT316-A119 16/08/11, DGAC INDONESIA STC SR025 18/02/19 Outsource2 (Outsource process - NDT per QSI038 4.1) *** WEAR LATEX GLOVES WHEN HANDLING CROSSTUBE*** Liquid Penetrant Inspection as per QSI 038Or Issue P/O: _____ LPI as per ASTM 1417 Level 2 Attach copy of NDT results to work order	Firmed	-	5/17/19	1 pcs	0 pcs	1 pcs	\$108.80/pcs	\$108.80
	187560		1x MAY 21 2019	Firmed	-	5/17/19	1 pcs	0 pcs	1 pcs	\$108.80/pcs	\$108.80
Sub Total:							2	0	2		\$217.60

Grand Total: \$1,088.00



Dart Aerospace Ltd.
1270 Aberdeen St
Hawkesbury, ON
K6A 1K7
Canada

Tel (613) 632-5200

PURCHASE ORDER

POHB043464



Order Notes

Procurement Quality Clauses

A005 right of entry
A012 chemical and physical test report
A016 personnel qualification
A017 raw material identification (as applicable)

A022 Apical Processing
A024 process certifications
A026 certification of material conformance

A041 quality management system
A042 dart notification by supplier
A043 retention of quality documents

A048 counterfeit parts avoidance, detection, mitigation and disposition program

A049 supplier awareness

Terms & Condition of Purchasing(Suppliers) and Procurement Quality Clauses are an integral part of our AS9100 requirements. To learn in detail, please visit www.dartaerospace.com for further explanation.

A handwritten signature in black ink, consisting of a stylized 'K' followed by a large, loopy flourish.

Plex 5/17/19 2:51 PM Dart.Guerin.Kimberley

**skyservice****Work Order Traveler**
Sky Service F.B.O. Inc.

10105 Ryan Avenue, Dorval, Quebec, H9P 1A2

TCCA AMO 53-89 / EASA 145 7142 / BDA AMO 385

WO #: MWO40427	Customer: Dart Aerospace Ltd.	Dept: NDT YUL	Reference: POHB043464 ✓
Descr:	PN:	S/N:	Qty: 1
Make:	Model:	Reg:	A/C S/N:
TSN:	CSN:	TSO:	
Task: UNSCHEDULED			Sequence: 1

Work Required:**CARRY OUT NDT INSPECTION (LIQUID PENETRANT) ON 10 CROSSTUBES**

ITEM ID: D412-664-203 AFT CROSSTUBE - HIGH

1 - WORK ORDER ID#: 194660 ✓

2 - WORK ORDER ID#: 194661 ✓

3 - WORK ORDER ID#: 194662 ✓

4 - WORK ORDER ID#: 194658 ✓

ITEM ID: D119-796-241 AFT CROSSTUBE INTS. WITHOUT STEP.

5 - WORK ORDER ID#: 194138 ✓

6 - WORK ORDER ID#: 194136 ✓

7 - WORK ORDER ID#: 194137 ✓

8 - WORK ORDER ID#: 187571 ✓

ITEM ID: D119-796-141 FWD CROSSTUBE INTS. WITHOUT STEP

9 - WORK ORDER ID#: 187563 ✓

10 - WORK ORDER ID#: 187560 ✓

RECEIVED

MAY 21 2019

DART AEROSPACE LTD.

Action Taken:					Date:	Initial/Stamp:
LIQUID PENETRANT INSPECTION CARRIED OUT ON ITEMS LISTED ABOVE (ITEMS 1-10) AS PER ASTM1417M-16					MAY 15 2019	
NO CRACK FOUND						
PEN ZL-37, MPO23206, CLEANER SKC-S MPO15030, EMU. MPO15896, DEV. MPO23451, UV LIGHT M-20142						
Description	Location	P/N	Qty	Batch	S/N Off	S/N On

I certified that the maintenance described above has been performed in accordance with the applicable standard of airworthiness.

Signature:	ACA/SCA Stamp 	Date:
Name: ANTONINO MARCHETTA		MAY 15 2019

SKYM002-1 REV 5 Apr/17